

### REMARKS

Upon entry of the present amendment, claims 1-28 are pending in the above-referenced patent application and are currently under examination. Claim 1 has been amended. Reconsideration of the application is respectfully requested.

Claim 1 has been amended to recite that the product of the methanol oxidation can at least one of methyl formate, dimethoxymethane and formaldehyde, and that the ethanol oxidation provides diethoxyethane. Support for the amendments to the claim can be found throughout the specification and in original claims 3-5 and 7.

Applicants believe the claim amendments add no new matter to the claims.

#### **I. OBVIOUSNESS REJECTION OVER JAEGER**

Claims 1, 2-5 and 8-28 have been rejected under 35 USC § 103(a) as allegedly being obvious over Jaeger. Applicants respectfully traverse the rejection in view of the comments below.

The Examiner alleges that Jaeger teaches the oxidation of methanol with the instantly claimed catalysts, and that the products of the inventive process would be prepared by the prior art catalyst. Applicants respectfully disagree for the following reasons: (1) Jaeger fails to describe the preparation of any of the products of the inventive oxidation process; and (2) Jaeger fails to describe the use of an *oxide* of a platinum-group metal as the catalyst for the oxidation of methanol.

As stated above, Jaeger fails to describe the preparation of any of the products of the inventive oxidation process. Amended claim 1 recites that the product of methanol oxidation includes at least one of methyl formate, dimethoxymethane, and formaldehyde, and that the product of ethanol oxidation includes diethoxyethane:

[W]herein the product of the oxidation of methanol comprises at least one of methyl formate, dimethoxymethane and formaldehyde, and wherein the product of the oxidation of ethanol comprises diethoxyethane.

Jaeger, however, discloses only carbon dioxide and water as the products of the methanol oxidation process, with no suggestion or description of any of the claimed products of the inventive process. Thus, Jaeger fails to describe all the elements of the amended claims.

Jaeger also fails to describe the catalyst of the inventive process: a platinum group metal *oxide*. The instant specification describes "platinum group metal" as including platinum, palladium, ruthenium, rhodium, osmium and iridium (see paragraph 17). The oxides of the platinum group metals

are also defined in paragraph 17, and can take the formula  $MO_x$ , where M is the platinum group metal, and subscript x is determined by the valence of the metal M.

In contrast to the platinum group metal oxide catalysts of the present invention, Jaeger describes the use of a Pd-supported catalyst, namely palladium supported on a material such as carbon or silica. Jaeger does not describe or suggest the oxide of palladium. One of skill in the art will appreciate that there are many palladium catalysts, a small number of which include  $Pd^{2+}(OAc)_2$ ,  $Pd^{2+}(AcAc)_2$ ,  $Pd^{2+}Br_2$ ,  $Pd^{2+}Cl_2$ ,  $Pd^{2+}(CN)_2$ ,  $Pd^{2+}(NO_3)_2$ ,  $Pd^{2+}(OAc)_2$ ,  $Pd^{2+}O$ ,  $Pd^{2+}(SO_4)$ ,  $Pd^{2+}S$  and  $Pd^0(PPh_3)_4$  (see Sigma-Aldrich catalog). Jaeger, however, fails to describe any specific palladium catalyst, much less a palladium oxide catalyst.

As Jaeger fails to describe any of the products of the inventive oxidation process, as well as a platinum group metal oxide as the catalyst, Applicants submit that the amended claims are not obvious under 35 U.S.C. § 103(a) over Jaeger. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

## **II. OBVIOUSNESS REJECTION OVER GERHARDT**

Claims 1 and 6-28 have been rejected under 35 USC § 103(a) as allegedly being obvious over Gerhardt. Applicants respectfully traverse the rejection in view of the comments below.

The Examiner alleges that Gerhardt teaches the oxidation of methanol with the instantly claimed catalysts, and that the products of the inventive process would be prepared by the prior art catalyst. Applicants respectfully disagree for the following reasons: (1) Gerhardt fails to describe the actual oxidation of methanol; (2) Gerhardt fails to describe the preparation of any of the products of the inventive oxidation process; and (3) Gerhardt fails to describe the use of an *oxide* of a platinum-group metal as the catalyst for the oxidation of methanol.

As stated above, Gerhardt fails to describe the oxidation of methanol, as instantly claimed, instead describing the *computer modeling* of methanol oxidation using a palladium catalyst. Thus, Gerhardt fails to describe all the elements of the amended claims.

Gerhardt also fails to describe the preparation of any of the products of the inventive oxidation process. As discussed above, amended claim 1 recites that the product of methanol oxidation includes at least one of methyl formate, dimethoxymethane, and formaldehyde, and that the product of ethanol oxidation includes diethoxyethane. Gerhardt, however, does not describe or suggest any of the claimed products of the inventive process. Thus, Gerhardt fails to describe all the elements of the amended claims.

Finally, Gerhardt fails to describe the catalyst of the inventive process: a platinum group metal *oxide*. As discussed above, the instant specification describes "platinum group metal" as including platinum, palladium, ruthenium, rhodium, osmium and iridium (see paragraph 17). In contrast to the platinum group metal oxide catalysts of the present invention, Gerhardt describes the use of a Pd-supported catalyst, namely palladium supported on a material such as carbon or silica. Gerhardt does not describe or suggest the oxide of palladium. Applicants submit that in addition to the lack of a description of any metal oxide catalyst in Gerhardt, that Gerhardt also fails to provide any motivation to select a palladium oxide catalyst based on the single teaching a palladium catalyst.

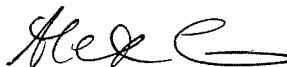
As Gerhardt fails to describe the actual oxidation of methanol using a palladium catalyst, any of the products of the inventive oxidation process, as well as a platinum group metal oxide as the catalyst, Applicants submit that the amended claims are not obvious under 35 U.S.C. § 103(a) over Gerhardt. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

### CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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